Pool Party

This is a single room experience that sorts out all the ins and outs of water as a UGC experience building block. This provides a general Rec Room world solution to the look, feel, and behavior of water in rooms.

Goals

1. Swimming is intuitive and feels great on all platforms
2. Objects in the world interact with water in a sane, accounted for way
3. Creators can use water in their own rooms, without extensive setup/customization
    a. It basically “just works”
4. This is a general purpose feature that works for many different contexts, from an ocean to a birdbath to tubes
5. Ryan (finally) gets to establish the canonical look of water in the RR universe
    a. From outside looking in
    b. From inside looking out
6. Water is performant on all platforms
7. Players share language about the look/character of water across platforms
8. Teleport players can “swim” too
9. Swimming metrics have approximate outcome parity on all platforms
    a. Don’t introduce egregious tactical differences between walking and teleport swimming for competitive contexts

New Entities:

Water Volume — This is an invisible volume that creators can place to get water locomotion/feedback in an area. Could be cylinder in addition to cube. Important that overlapping volumes don’t compound/rattle mechanics.

Water Material — Available in the palette alongside our other materials. Can be applied to any shape. Rendering prevents overdraw. Supports recolor operation.

Pool with a shallow end and deep end

walking locomotion while in waist-deep water

Footstep sounds while in ankle-deep water

Cross-platform Swimming Mechanics

Submerged swimming

Surface Swimming

Transitioning between submerged surface

Transitioning from swimming standing

Tools/Mechanics

Diving board —

- physicality and timing of executing jumps

Jumping Into Water —

- How deep to you go based on velocity?
- How do you decelerate?
- At what point in deceleration do you actually gain swimming control?
- All of these details aren’t critical in and of themselves, but they all work together to sell swimming
- What happens if you jump into water, and then don’t touch the controls?
    - Very slowly rise to surface, unless we get input?
- Test cases:
    - jump into water from pool edge
    - jump into water from 5 feet
    - jump into water from 40 feet
    - Jump into water from a fast-moving platform
- Which way is up? How do I know?

Inflated Raft — you can board this object and row it with an oar, or paddle with your hands. Everyone on the raft stay parented as it drifts.

Buoyancy — Objects sink or float, and interact sanely with the water volume. A basketball would float, but a gun would sink, etc.

Audio Listener changes underwater

Teleport swimming

Underwater throwing — what happens if I throw a dart? A dodgeball? Sane outcomes when you try these things should be the difference between Rec Room and some other app that glosses over this.

No configurables for water density for MVP

Open Questions:

Q: Do we have more than one water material/look? E.g., swimming pool vs. ocean?

TBD

Q: Do we have a way to render “moving” water, like rivers?

A: We would love to investigate animated materials, and giving creators some control over them, but not critical for shipping water MVP.

Q: How do projectiles interact with Water Volumes?

Do paintballs and lasers impact the surface and die? Do the enter the volume just like air? Do they slow down when they enter?

Same questions for Grenades, arrows, missiles, etc.

Q: Do we have cool shaders and visuals for ripples, wakes, etc?